

New Claims

- 5 1. A method of achieving in an absorbent article such as a diaper or an incontinence guard that includes an absorbent body (23) disposed between a liquid-impermeable bottom sheet (21) which is intended to lie distal from the wearer in use, a liquid-permeable upper sheet (22) which is intended to lie proximal to the wearer, and either 1) at least one longitudinally extending liquid barrier (28, 29) on each side of
10 the centre line of said upper sheet, made of essentially liquid-impervious material (12) and fastened along or adjacent to a respective longitudinally extending side extremity of the article and comprising a free elastic sealing edge intended to be stretched against the wearer, or 2) above the upper sheet (22), a top liquid-impermeable sheet which is intended to lie against the wearer, includes elastic for shaping the article to the wearer's body, and includes apertures intended to lie in register with the anus and the urethra orifice of the wearer, around which apertures elastically puckered sealing edges, are disposed in the top sheet,
15 an improved sealing ability against the skin of an intended wearer, at a given available elongation, by at least one sealing edge (28, 29) on each side of said centre
20 line, characterized by modifying or treating the absorbent article in such a way as to cause the absolute value of $\Delta P = 2\gamma \cos\theta_m / r$ for said sealing edge (28, 29) to increase, where γ designates the surface tension of the liquid to be absorbed by suction, r designates the radius of the largest circle that can be encompassed in any pore formed by the sealing edge against the wearer's skin at the given available
25 elongation, and $\cos\theta_m$ is the weighted mean value of $\cos\theta$, where θ is the wetting angle of the liquid to the material in the pore walls, while taking into account the different materials in the walls of this largest pore.

AMENDED SHEET

2. A method according to Claim 1, characterized by causing the absolute value of ΔP to increase at least within the major part of an available elongation range of 20-40%.

5 3. A method according to Claim 1 or 2, characterized by causing the absolute value of ΔP to increase by at least 5%, particularly by at least 15%, preferably by at least 25%, and then particularly by at least 35%.

4. A method according to any one of the preceding Claims, characterized
10 by causing the pore radius of the sealing edge to decrease at least at an available elongation above 60%, particularly at an available elongation above 50%, more particularly at an available elongation above 40% and then preferably at an available elongation above 20%.

15 5. A method according to any one of the preceding Claims, characterized by causing the absolute value of $\cos\theta_m$ to increase.

6. A method according to Claim 5, characterized by treating the sealing
20 edge such that a higher wetting angle of the liquid to the barrier material will be obtained and/or such that a higher wetting angle of the liquid to the skin of the wearer will be obtained within those regions in which the sealing edge lies against the skin when the absorbent article is donned.

7. A method according to any one of the preceding Claims, characterized
25 by providing the sealing edge with a layer of material that increases the absolute value of $\cos\theta_m$ and/or that reduces r when the article is donned.

8. A method according to any one of Claims 1-7, characterized by causing the absolute value of $\cos\theta_m/r$ to increase.

9. An absorbent article that includes an absorbent body (23) disposed between a liquid-impermeable bottom sheet (21) which is intended to lie distal from the wearer in use, a liquid-permeable upper sheet (22) which is intended to lie proximal to the wearer, and either 1) at least one longitudinally extending liquid barrier (28, 29) on each side of the centre line of said upper sheet, made of essentially liquid-impervious material (12) and fastened along or adjacent to a respective longitudinally extending side extremity of the article and comprising a free elastic sealing edge intended to be stretched against the wearer, or 2) above the upper sheet (22), a liquid-impermeable top sheet which is intended to lie against the wearer, includes elastic for shaping the article to the wearer's body, and includes apertures intended to lie in register with the anus and the urethra orifice of the wearer, around which apertures elastically puckered sealing edges are disposed in the top sheet, characterized in that in respect of at least one sealing edge (28, 29) on each side of the centre line of said absorbent body the absolute value of $\Delta P = 2\gamma \cos\theta m/r$ lies above the line $y = kx + m$, where x designates the available elongation, k has the value $-14/30$ and m has the value 48, particularly 51, preferably 57, more preferably 63 and in particular 69, within the major part of an available elongation range of between 20 and 40% and where γ designates the surface tension of the liquid to be absorbed, r designates the radius of the largest circle that can be enclosed in any pore formed by the sealing edge against the skin of the wearer at a given available elongation, and $\cos\theta m$ is the weighted mean value of $\cos\theta$, where θ is the wetting angle of the liquid to the material in the pore walls while taking into account the different materials in the walls of the largest pore.

10. An article according to Claim 9, characterized in that the free sealing edge includes a layer of a material such that a higher wetting angle of the liquid to the edge material will be obtained and/or such that a higher wetting angle of the liquid to the skin of the wearer will be obtained within those regions in which the sealing edge lies against the skin and where said material smears the skin when the absorbent article is donned.

11. An article according to Claim 9 or 10, characterized in that the free sealing edge is provided with a layer of a material which at least partly fills out the pores in said edge when the article is donned.

12. An article according to any one of Claims 9-11, characterized in that when the article is donned, the free sealing edge has a pore radius which is essentially independent of the available elongation or stretch and which is at most 0.10 mm, preferably at most 0.08 mm and most preferably at most 0.04 mm.

13. An article according to any one of Claims 9-12, characterized in that the free sealing edge is comprised of a ribbon-like elastic film.

14. An article according to any one of Claims 9-13, characterized in that the absolute value of $\Delta P = 2\gamma \cos\theta m/r$ lies above the line $y=kx+m$ within the major part of an available elongation range of 15-50%, preferably within the major part of the range 10-60%.

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